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No. IX.

SCREW-WRENCH.

The sum of TEN GUINEAS was this session presented to Mr. FR. WATT, for his SCREW-WRENCH; a model of which has been placed in the Society's repository.

SIR, Pedlars' Acre, Lambeth, April 21, 1823.

I HEREWITH send you a model of a screw-wrench, the invention of Mr. Francis Watt, engineer. He is not expected to live many days, and has sent it to me requesting my acceptance of it, in gratitude for some little attentions I have shown him formerly; conceiving it the best wrench that I have seen, if the Society should think it merits a reward, I shall have great pleasure in handing the same to the sick man, or his widow.

I am, Sir,
&c. &c. &c.
GEO. SMART.

A. Aikin, Esq.
Secretary, &c. &c.

Mr. Watt died on the very day that his invention was brought before the committee, and the reward was consequently bestowed on his widow.

The screw-wrench is a kind of lever-vice, and is an extremely convenient tool for securing and loosening square headed screws, and for other similar purposes. The movable chap of the instrument is secured at any required distance from the fixed one, sometimes by means of a screw, and sometimes by means of a short wedge driven in at the base of the sliding bar. To both these methods, however, as usually applied, there are objections arising from the liability of the former to be injured, and of the latter to give way under the great strain which is sometimes put upon the instrument.

Mr. Watt's wrench is represented plate XI., fig. 7. *i i* Is the fixed bar terminated by the fixed chap *h*, *j j j* is an iron case inclosing and fixed firmly on the bar *i i*, *k* is the sliding chap, having a hole cut in it for the bar *i i* to pass through, and secured to the sliding bar *l l*. It will be observed that the lower end of this bar is cut off very obliquely, so as to form a long low wedge.

m n Is a low wedge, still longer than that just described.

In order to make use of the instrument, the wedge *m n* is to be withdrawn, the chap *k* is to be moved on the bar *i i*, till the screw head, or other object to be acted on, is closely embraced between twe two chaps; the movable wedge is then to be inserted point foremost, and is to be driven home by a light blow or two of a hammer, or may be forced in sufficiently even by hand.

The long line of bearing that the two wedges have on each other renders it impossible that they should give way, while, at the same time, a very moderate blow on the point of the movable wedge will be sufficient to disengage it.

It is by no means absolutely necessary to take out the movable wedge previous to adjusting the instrument; all that is required being that the sliding bar *l l* should move easily.

It will therefore be found convenient to drill a hole through the point of the wedge at *m*, and insert a small pin, in order to prevent the wedge from slipping out of the case *j j*, and being lost.